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SULPHATE of CINCHONIDIA
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ON THE USE

OF

SULPHATE OF CINCHONIDIA

IN PARTS OF THE STATES OF

ILLINOIS, INDIANA, MISSOURI, KENTUCKY,
AND IN THE MISSISSIPPI VALLEY,

IN 1875.



From Medical Journals, Societies, and Individual Physicians.

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THE CHEAPER CINCHONA ALKALOIDS.

From Jas. S. Whitmire, M. D., Metamora, Ill., in the Chicago Medical Journal, August, 1875.

For several years we have been convinced that it would be to the material interest of the medical profession, everywhere, to pay more attention than has heretofore been done to the use of the cheaper cinchona alkaloids, and this should be the case, more especially, with that portion of the profession who reside in the rural districts and country villages, where they are compelled, almost from necessity, to furnish their own medicines. There are several reasons why this should be done, among which is the well-known fact that the forests of the different valuable species of the cinchona tree are becoming greatly decimated; and though there is still an abundance of the bark for the world's supply, yet the time is not far distant when the States of South America, where the tree is indigenous, will institute measures for its preservation, and this will necessarily shorten the supply of the bark. We understand that such measures have already been instituted in Chili and Bolivia. It is true that the Dutch in Java, and the English in the East and West Indies, have been successful in acclimatizing some of the most valuable species of the cinchona tree, and have already begun to make the bark from their plantations a commodity of commerce; yet, with the wholesale destruction of the tree in its native mountain wilds, for the procurement of the bark for the purposes of commerce, it must, sooner or later, be decimated to the minimum amount, so that the supply will necessarily cease to be equal to the demand. This may not prove to be the ultimate result in our day, but we, the profession, who claim to be humanitarians, should look with a jealous eye, not only to our

own pecuniary interests and physical well-being, but the welfare of those who are to come after us, and fill our places for a brief period, should be kept constantly in view. Another reason why we should pay more attention to the use of the cheaper alkaloids, is that either or all of them are relatively cheaper than quinia, even though two of them have to be used in larger doses than the latter drug to accomplish the same results; besides, so far as our experience has been connected with their uses, we have not the least question of their utility as a substitute for quinine under nearly all circumstances where the use of the latter drug is indicated.

With the above prefatory remarks, we now desire to state that we have used all of them, excepting cinchonidine, in our practice for several years. We first used sulph. of cinchonia, next sulph. quinidia, and third, the sulph. of cinchonidia; and even the residue—chinoidine—which is evaporated to dryness from the mother-waters after the crystallizable salts have been separated, has been utilized in our practice, as a prophylactic against the recurrence of intermittents. We seldom make use of the sulph. cinchonia—which we have used for the longest period—as an antiperiodic, or antipyretic, because of its tendency to nauseate the stomach; but, nevertheless, we are convinced that it possesses valuable febrifugal and antiperiodic properties, and may be advantageously utilized for such purposes in the absence of either of the other preparations of the bark. Notwithstanding its nauseating qualities, we usually make it available as a general tonic in connection with the mur. tinct. of iron, especially at times when a chalybeate is indicated—a condition which is seldom absent after an attack of intermittent or autumnal fever; and we find it to be, to the full, as efficient in this respect as quinia, or any of the bitter tonics; besides, it has the advantage of acting as a prophylactic against the recurrence of a chill. Our usual prescription, under the circumstances just mentioned, is this:—

R. Cinchon. sulph.,	ʒj-ij
Ferri. mur. tinct.,	ʒj
Syrup simp.,	ʒiij.

Sig. One teaspoonful, in water, at each meal.

This is an admirable tonic, and may be used with advantage in anæmia and other debilitated conditions. The sulph. of cinchonia, in bulk, costs about thirty-five cents per ounce.

The sulph. of quinidia we have used to a greater or less extent in our intermittent and remittent bilious fevers ever since it was first thrown upon the market. This alkaloid, though, in fact, but little cheaper than quinine, we have found equally efficacious as an antiperiodic and antipyretic as the quinia sulph., though it must be used in a little larger dose than the latter drug. As an evidence of its value in some of the periodical neuroses, such as that commonly known as sun-pain, we have frequently administered it with as prompt relief to our suffering patients as we have ever known to be produced from the use of our sheet-anchor—quinine. As an example, my wife for many years has been subject to this distressing intermittent or periodical neuralgia; she was greatly opposed to taking quinine on account of the tinnitus aurium and other distressing symptoms it produced. Now, under these circumstances, while twenty-five to thirty grains of quinine may have been sufficient to interrupt the paroxysms of pain, I administered to her forty grains of the quinidia sulph. in the course of twelve hours, which completely warded off the attack, and did not subject her to the disagreeable after-effects to that extent that the use of quinia is wont to do. This drug (quinidia) costs in the market about \$1.63 per ounce, but the dose required being nearly or quite one-fourth larger to produce the same febrifugal effect as that of quinia, it makes the expense but very little less than the latter drug. But if its febrifugal and other qualities be equivalent to that of quinine in proportional doses, why not use it more extensively, especially in our milder malarial fevers, so that the demand for quinia will not be so great, thus cheapening the article of quinine, and, at the same time, preventing the wholesale destruction of the bark that has been going on for years for the production of a sufficiency of quinine to supply the world's demand?

The last of the alkaloids—sulph. of cinchonidia—

though *not the least*, comes up for our consideration. This article has not been so long upon the market as the latter alkaloid; in fact, it has not till within a few months been brought more than casually to the notice of the profession; but because its introduction has been of but recent date there is no reason why those who have seen fit to test its medicinal virtues, and give it a fair and impartial trial, should be treated so cavalierly when they attempt to call the attention of the profession to its value as a remedial agent. It is our object in this paper to call the attention, especially, of country practitioners to the unqualified value and merits of this drug as a tonic, febrifuge, and antiperiodic. So far as our experience has gone with the use of this alkaloid—cinchonidia sulph.—we are disposed to attribute to it very nearly, if not quite, an equivalent therapeutic value with that of the sulphate of quinine. We have used it in the same doses—ten to twenty-five grains—with complete success, in interrupting the paroxysm of intermittents; we have administered it, in connection with morphia, to dispel the malarial complications that sometimes occur in pneumonia, with satisfactory results; and, in acute rheumatism, we have substituted it for quinia, whenever the latter drug seemed to be indicated, with unequivocal benefit. We have had this spring (1875) in this vicinity more than a usual amount of malarial or periodical diarrhoea and neuralgia, both among children and adults, for the relief of which we have been in the habit of prescribing the sulph. cinchonidia, with other appropriate remedies. In these cases the same amount was given as that of sulph. quinia under similar circumstances—we seldom or never had to repeat the dose—and its administration was attended with the most complete and satisfactory results.

This article—cinchonidia sulph.—can be obtained by the quantity for from seventy-five to eighty cents per ounce, and, therefore, we would respectfully ask the question: If the value of this agent as a tonic and febrifuge is equivalent, or nearly so, to that of quin. sulph., and its commercial value is only one-third of the latter, is it of no concern to the country practitioner, who has to furnish,

at great expense, annually, his own drugs, not only to the wealthy, but to the indigent from whom he never expects to receive one farthing for his services, and for whom he labors solely for the sake of suffering humanity, for the answer of a good conscience, and the gratitude of his beneficiaries?

We would not use these cheaper remedies merely for mercenary motives; no one could conscientiously do so; but we would, and do, prescribe and use them because we believe them, in equivalent doses, to be of the same therapeutic value as that of quinia, and that they may be safely used as a substitute for it; and, in so doing, we are treating our patients well, and, in not a few instances, we are not only contributing our medicine and our services to the poor, but we are rendering good service to the general health and comfort of our patients, and saving to ourselves the difference in the cost of the drug used, which would amount to no mean sum in the course of the year, and which the country physician so much needs, because, at best, his life is a hard one, and few there are, indeed, who make any more than enough, from year to year, for the economical support of themselves and families.

Chinoidine, the residual product of the mother-waters, we have used for more than twenty years as a prophylactic against the recurrence of intermittents. The most eligible form in which we have been able to prepare it for use, is to finely powder the resin, and then add a sufficient quantity of calcined magnesia to prevent the powdered resin from running together, then thoroughly rub them in a mortar, and afterward bottle. Of this powder we give from three to four grains, after each meal, for one day; on the next, we administer ten drops of Fowler's solution, in water, after each meal; and so continue alternating the medicines for four or five weeks, when every vestige of malarial influence will be found to have vanished. Of course, we always first interrupt the paroxysms by the use of one or the other of the salts of the cinchona alkaloids.

In case these directions are strictly carried out, there will not be three per cent. of relapses, while there are

more than thirty per cent. where the prophylaxis is not used. Chinoidine, used in this manner, is by no means a disagreeable medicine, because it is but slightly soluble in either saliva or water; hence it may be given in syrup to children with but little or no complaint.

From the St. Louis Medical and Surgical Journal, September, 1875.

Extract from the Minutes of the Allen County, Indiana, Medical Society, on the Use of Sulphate of Cinchonidia.

A spirited discussion on this subject was participated in by Drs. J. R. Beck, Jas. S. Gregg, D. S. Linvill, G. S. Brueback, and C. Sihler, during the course of which several of the gentlemen spoke in most favorable terms of their experience with sulphate of cinchonidia, and all agreed that the investigation of the merits of the drug was important.

From the Indiana Journal of Medicine, September, 1875.

Extract from the Minutes of the Wabash County Medical Society, on the Use of Sulphate of Cinchonidia.

The subject was taken up and discussed by the members, who gave a very favorable report of the sulphate of cinchonidia. So far as they had used the medicine it had answered equally the purpose of quinine in intermittent fevers, etc., and in some instances, where there was an idiosyncrasy against quinine, it acted much better.

From the American Practitioner, October, 1875.

Dr. Theophilus Parvin, in Notes of Practice at the Indiana Reformatory for Women and Girls, writes as follows:—

SULPHATE OF CINCHONIDIA IN INTERMITTENT FEVER.

Nearly two months ago I commenced the use of sulphate of cinchonidia. It was administered in a solution*

* Since writing the above, some three weeks ago, many new cases of intermittent have occurred at the Reformatory, and they have been characterized by greater gastric disturbance and greater obstinacy to the action of remedies. For the former reason I have replaced the solution mentioned by pills of the sulphate of cinchonidia, tartaric acid, and water (this is an admirable way of

Sulph. Cinchonidia 3i
 Elip. Vit. 3i
 Water 3ii. 9

made by adding to one ounce of the salt two fluid ounces of aromatic sulphuric acid, and fourteen fluid ounces of water. A teaspoonful, or one fluid drachm, of this solution would therefore represent three and three-quarter grains of the sulphate.

The number of cases of intermittent fever treated with this preparation was twenty-four—two quotidiens, one quartan and the rest tertians. Immediately upon the manifestation of the disease two teaspoonfuls of the solution previously mentioned were given, and continued three times—adults four times—a day for three days; then, in order to prevent a relapse, two teaspoonfuls twice a day for one month. In no instance did it fail to promptly arrest the disease, and in no case has there been a recurrence, save when there was a failure to take the remedy as directed. In a case of Wood's *pernicious fever*, I did not think it right to risk the cinchonidia, but gave quinia; nor have I yet tried it in malarial neuralgia, having had such long-established confidence in the value of quinia, with morphine and the English extract of belladonna, in this disorder; but, with these exceptions, the sulphate of cinchonidia is almost the sole reliance as an antiperiodic in my practice at the Reformatory.

From the St. Louis Medical and Surgical Journal.

ST. LOUIS, Mo., November 15th, 1875.

MR. EDITOR:—In answer to your inquiries, there were treated at the City Dispensary, from August 13th to November 3d, seventeen hundred and eighty-eight cases of malarial disease; of this number, five hundred and ninety-six took sulphate of cinchonidia, instead of sulphate of quinine. The quantity given was the same that we give of quinine. It was quite as efficient, and in some cases I thought more efficient than quinine.

I have tested it, I think, pretty thoroughly. The condition upon which the patients received their medicine

making pills); and, for the latter, I have given the sulphate in larger doses; in one instance, forty grains within twelve hours. The general result has been still quite satisfactory. In the few instances where the remedy failed to arrest the disease, it was not given in sufficient quantity, or was rejected by vomiting.

after proving their poverty, was, that they report to me, promptly and regularly, their progress.

They did thus report, and the results and facts thus obtained were convincing to me. My usual plan of treating the cases was as follows:—

If the bowels were not already in a soluble condition, they were rendered so by a free use of sulphate of magnesia. Sulphate of cinchonidia was then administered (even though the fever had not yet disappeared), in five to eight-grain doses, every two or three hours, until forty grains had been taken, then continued in two-grain doses, every three hours, until twenty grains had been thus used; it was then discontinued until the seventh day from the day of the last paroxysm, when it was again resumed, two grains every three hours during the day. This resumption on the seventh day was repeated as far as the fourth seventh day; on the intervening days a pill was given, compounded as follows:—

R. Sulphate of cinchonidia,	gr. j
Ferri. pulv. (per hydrogen),	gr. j
Strych. sulph.,	gr. $\frac{1}{3}$
Acid arsenious,	gr. $\frac{1}{25}$.

Out of the five hundred and ninety-six cases, there were six cases of failure on the part of the cinchonidia to break and prevent the paroxysms. These I attributed to the patients failing to follow instructions. (This report does not include imbeciles and dead-beats, to the number of about thirty; wherein there was failure, the cause of failure was too palpable.) About fifteen relapses occurred at the end of the third or fourth week; some of these were dependent, I thought, upon leaving off the medicine too soon. We have, then, I think, in sulphate of cinchonidia a substitute for quinine, cheap, efficient, and easy of administration, not followed by the disagreeable tinnitus aurium peculiar to quinine. Yours, truly,

J. U. LOVE, M. D.,

Dispensary Physician.

From the St. Louis Medical and Surgical Journal.

Cinchonidia is one of the alkaloids of cinchona. We have used its sulphate, with success, in this asylum, as a substitute for quinine.

It has been given in a large number of malarial affections, and in no case has it failed to do all that could have been expected of quinine. We have used in the last seven months thirty-five ounces of sulphate of quinine, thirty-four ounces cincho-quinine, and forty ounces of sulphate of cinchonidia.

I have tabulated, from the records, 100 cases of intermittent fever which were treated with cinchonidia. The average length of treatment was 4.3 days; the average amount taken, 83.7 grains, or at the rate of 19.5 grains a day.

The general plan pursued was to give a mild purgative, and follow it with ten or fifteen grains of the cinchonidia, with a malarial pill twice a day. Very few had the second chill, but the treatment was continued for several days as a precautionary measure. In some of the weaker patients it was followed by tonics. There were only two or three relapses. The drug was generally well borne by the stomach.

Observation of its effects has tended strongly to convince me that, while fully as effectual as quinine, it is much more gentle in its action, rarely producing the tinnitus aurium, deafness, roaring in the head, etc., etc., which make the latter drug so obnoxious to many patients. As the statements of the insane cannot always be relied on, I am not in a position to speak positively on this point.

I have myself taken fifty grains in two days, without any head symptoms whatever. On me its effect is simply charming. I shall never take another grain of quinine if cinchonidia be procurable.

The malarial pill spoken of above is made according to the following formula:

R. Mass. hydrarg.,		
Piperine,	āā	grs.cc
Cinchonidiæ, sulph.,		℥ss
Ammoniæ carbazotatis,		℥ij
Podophyllin,		grs.xv
Atropiæ sulphatis,		gr.j
Ol. piperis nigri,		q. s. ut.

Ft. mass. div. in pil. No. cc.

Sig. Two to five a day.

The only novelty claimed in this pill is the use of atropia. I was first led to employ it as an anti-malarial agent by observing the analogy between the pathological conditions in some varieties of congestive chill and cholera. I had used it successfully, following the example of my friend Dr. Hodgen, in the latter disease, and in cholera-morbus, and concluded that it might be efficacious in the former. This proved to be the case. I then succeeded in stopping a "shaking ague" in a few minutes by a hypodermic injection of, if my memory serves me right, $\frac{1}{16}$ grain of sulphate. Thus encouraged, I began to use it internally in the treatment of intermittents, and thus far have found it a valuable adjunct to other remedies. These pills, when given *one* every four, five, or six hours, are often alone sufficient in mild cases.

The utmost care should of course be taken to secure the accurate division of the atropia.

The one two-hundredths of a grain contained in each pill, may appear to some a homœopathic dose, but if they will try a few doses, a couple of hours apart, their opinions will probably undergo a change.

The cinchonidia has proved valuable as a tonic, efficacious in certain forms of neuralgia and rheumatism, and a good sedative in some cases of mania and melancholia.

We have also used the sulphites of soda and magnesia, and the tincture of eucalyptus globulus, in the treatment of intermittents. The sulphites acted well in quite a number of cases, but failed entirely in several others, which were immediately relieved by the cinchonidia. The eucalyptus is still on trial.

The sulphate of cinchonidia can be bought for a little more than one-third the price of the sulph. of quinine. That used by us was made by Powers & Weightman, of Philadelphia.

N. D. V. HOWARD, M. D.

St. Louis County Insane Asylum, Nov. 1, 1875.

Extract from a letter of Dr. F. B. EINSEN BOCKIUS, Medical Director of the North Star Dispensary, Chicago, Ill., October, 1875.

In a public charitable medical institution which, like the North Star, treats annually from 10,000 to 14,000 pa-

tients, it is obvious that the cases in which a remedy of this nature is demanded are very numerous, and the opportunity for investigation almost unlimited. Though but a few months have elapsed since I commenced its trial, the instances of its employment have grown into hundreds.

As the result of experiments upon the lower animals, in which a fatal effect had been produced by cinchonidia, I found but one common and constant pathological change, viz.: intense congestion of the anterior portion of the cerebral hemispheres. In this peculiarity your alkaloid resembles cinchonia, and differs from quinia, which causes hyperæmia of the investing membranes, and frequently injection of the brain tissue itself.

My attention has been especially directed to the therapeutical application of cinchonidia in its administration as tonic, antiperiodic and alterative, with the annexed results.

AS TONIC. In cases of impaired digestion—except when accompanying great general debility or nervous prostration—it ranks equal with quinia, while in disordered alimentation, co-existing with cerebral or arterial excitement, cinchonidia is vastly the superior of that derivation. Your remedy is less apt to create gastric irritation, and is more readily borne by children.

AS ANTIPERIODIC. In recent intermittent and remittent fevers it has surprised me by the rapidity, certainty, and ease with which it arrests the paroxysms, and, as well, by the almost total absence of unpleasant effects upon the sensorium, such as are often urged as a valid objection to the employment of quinia. In malignant remittent (congestive chill) I have not had occasion to test it, but do not doubt its efficacy. When, however, we have to deal with old or chronic cases of periodic fevers, the remedy has proven at my hands less energetic in gaining control of the disease than quinia, although it affords a much surer immunity from a return of the disorder.

AS ALTERATIVE. I am fully persuaded that cinchonidia possesses, in a marked degree, a hitherto unnoticed property as an alterative. My attention having been

pointedly attracted by the rapid improvement of chronic (probably tinctured with specific poison) ulcers, affecting patients who were under treatment for ague (and upon whom quinia and iron had been used without mitigation of the local malady), directly the system was brought under the influence of cinchonidia, administered in antiperiodic doses, repeated experiments always affording the same results, I am compelled to admit to the alkaloid a medicinal virtue very similar to that possessed by "*equatoria garciana*" (when the Bliss & Kean fluid extract is deprived of its iodide of potassium and bichloride of mercury), that is, a tonic alterative, differing from colchicum and the minerals in the fact that it maintains and increases the tone of the system while it exerts its power as an alterative.

The conclusions I draw from my experience with cinchonidia are somewhat as follows: It is tonic, antiperiodic, and alterative; it is less (than quinia) a local irritant, either when applied externally or administered by the mouth, and also disturbs less injuriously the functions of the various organs of the body; if taken in poisonous quantities, it causes congestion of the anterior lobe of the cerebrum, which may possibly be urged to inflammation; in cerebral, arterial or inflammatory excitement it is preferable to quinia (when, of course, either is indicated), as it affords a more perfect security from relapse than its rival, and, while less rapidly energetic, it maintains its influence for a greater period of time.

In private practice I employ cinchonidia as frequently as quinia, while for Dispensary uses I greatly prefer the former, both on account of its reduced price (which is always an object with charitable institutions), and because of the permanence of its effects.

North Star Dispensary is employing cinchonidia almost exclusively, and if the preparation proves itself as useful in the future as in the past, we will not soon discard it.

From Dr. Philip Adolphus, of Chicago.

The gentlemen of the medical staff of the Central Free Dispensary of West Chicago have, for the past three

months, been using sulph. of cinchonidine to the exclusion of quinine.

They are satisfied with its antiperiodic and tonic powers.

Sulph. of cinchonidia will in future be used in this Institution as a substitute for quinine.

Dr. M. M. Van Ness, Decatur, Indiana.

It is with the greatest gratification, after a continued test in every case where I have heretofore employed quinine, that I commend the use of cinchonidia. In ague, I think it far preferable. In over five hundred cases, during the past sixty days, I have administered it in doses of from fifteen to forty grains, and have never had a recurrence of the disease. I have no further use for quinia, and am certain, where it is fairly tried, it will supersede all other bark preparations.

From Dr. F. S. C. Grayston, Huntington, Indiana.

I have prescribed some fifty ounces of cinchonidia for the various malarial diseases incident to this climate, and with satisfactory results. I believe in almost every case its effects were as prompt and reliable as generally attend the exhibition of sulphate of quinia. It is undoubtedly a valuable addition to our *Materia Medica*.

I have prescribed the cinchonidia in somewhat larger doses than that of quinia, and have noticed a less disposition to the return of agues under its influence than has been my experience with the sulphate.

Dr. N. de V. Howard, St. Louis County Insane Asylum.

We have used during the past six months over fifty ounces (of sulphate of cinchonidia), and find it equally as efficacious as quinine.

Dr. T. J. Griffith, Darlington, Indiana, August 22, 1875.

I assure you that sulphate of cinchonidia is a new thing with me. I began using it in 1874, along with quinia, and find it equally as reliable as an antiperiodic. During the present year, I have not used any quinia in my prac-

tice. For the country practitioner, who dispenses his own medicines, in the use of cinchonidia there is a saving of 125 per cent.

Dr. S. P. Collings, Surgeon to the Indianapolis City Hospital.

I used the sulphate of cinchonidia in the surgical wards of the City Hospital for several months, and gave it, I think, a fair trial. Found it equal to quinia in every respect.

Dr. John C. Nottingham, Marion, Ind.

So far as I have used cinchonidia, the action has been as prompt and effective as quinia, without any cerebral disturbance. I know of no reason why it should not take the place of quinia in almost all cases requiring that drug.

Dr. G. O. Woolen, Secretary Indiana State Medical Society, Indianapolis, Indiana.

I have used the cinchonidia furnished me, mostly in my own family, in several forms of malarial trouble, and found no perceptible difference between it and sulphate of quinia, of which I have used a large amount.

Dr. Jno. A. Gale, Resident Physician of City Dispensary, Indianapolis, Ind.,
Dec. 1, 1875.

I have used the sulphate of cinchonidia sent me, and must say that I was agreeably surprised at the result. Subsequently I have prescribed over one hundred ounces in my dispensary practice, and have found it the equal of quinia in the treatment of intermittent and remittent fevers. It has the material advantage of producing little or no cerebral disturbance, which renders quinia so disagreeable. In the case of women and children, I have a decided preference for sulphate of cinchonidia over quinine. As a tonic, the sulphate of cinchonidia is particularly efficacious, being much superior to the sulphate of quinia.

I have formed the above-expressed opinion of this remedy from actual experience in its use.

Dr. J. W. Pritchett, Corresponding Secretary of Kentucky State Medical Society, Madisonville, Ky., Dec. 24, 1875.

The sulphate of cinchonidia has been all that you claimed for it, and even more. I have not prescribed a drachm of quinia since October; have used cinchonidia exclusively, and its effect has been most happy. The bad effects (cinchonism) that result from the use of quinia are not felt when the sulphate of cinchonidia is used. I use it in same size dose (by weight), and find it equally as reliable and efficacious in the malarial diseases that are so prevalent during our autumn months. I have not given it a trial in pneumonia, or the diseases incident to our winters, but I would not hesitate to prescribe it when quinine was indicated.

Dr. T. S. Bell, Medical Department University of Louisville, Louisville, Ky., Dec. 25, 1875.

I have used the sulphate of cinchonidia as satisfactorily as I have used quinia or quinine. I have not seen it fail in any instance. I administer it in the same doses that I use in quinia or quinine. It is equally as effective as the quinine, and is not as apt to produce disagreeable effects in the head. I have used large quantities of the sulphate of cinchonidia, and I do not desire a better remedy for intermittent and remittent fevers. The results of the use of sulphate of cinchonidia in the Kentucky Institution for the Blind, under my medical supervision, have been satisfactory in the highest degree. I gave four ounces of the sulphate of cinchonidia to Dr. Robarts, who has charge of the University Dispensary, and he speaks of the results there in terms similar to those that I have expressed as of my personal knowledge.

Dr. John E. Pendleton, Hartford, Ky., Dec. 23, 1875.

I have used sulphate of cinchonidia in a number of cases, and the results were very nearly equal to those of the sulphate of quinia. The paludal diseases we had here at the time I received the sulphate of cinchonidia were more than ordinarily intractable, frequently assuming a pernicious or congestive type. Not being acquainted with the sulphate of cinchonidia, I feared to risk it in the

worst cases, as often a second paroxysm would be fatal; but since I have tested it, I should not feel great anxiety for a patient who had taken forty grains of your alkaloid in the "interval," even in the worst cases. From the short acquaintance I have had with the sulphate of cinchonidia, I feel safe in saying that, though possibly not the equal of quinine as an antidote to the paludal toxæmia, it is next to that agent, of all the remedies of which I have any knowledge.

Dr. John A. Oesterlony, of Louisville, Ky., Dec. 31, 1875.

Since the beginning of October, I have made the therapeutic value of sulphate of cinchonidia an object of special study. I have used it in private practice, and in my ward at the hospital, and I wish there was time to work up the notes taken in both these fields of observation; but just now there is not, and I must be content with giving my opinions on this subject, rather than the facts upon which they are based.

The greater cheapness of sulphate of cinchonidia renders its use in public institutions a matter of duty, if it can be shown that this salt is as much to be relied upon as sulphate of quinia.

I gave it in about forty-five cases of malarial fever, this autumn, and in all but two it proved as efficient and thorough a remedy as the corresponding quinia salt.

The dose required in these cases did not exceed that of sulphate of quinia.

The sulphate of cinchonidia was invariably found to produce very little or none of the disagreeable symptoms collectively termed cinchonism; and in the malarial diseases of children I found it superior to quinia, because less disagreeable and less liable to cause vomiting.

I have tested the antipyretic properties of sulphate of cinchonidia in six cases, and found them to be nearly if not as well marked as when I have given quinia.

The two cases mentioned above, in which the cheaper salt failed to effect a cure, were of very long standing, and both arsenic and quinia had to be used before a cure was completed.

From J. Murray Rogers, M. D., Memphis, Tenn., Dec. 20th, 1875.

I have given the cinchonidia a thorough test, as intermittent fevers were never so universally prevalent throughout the entire Mississippi valley as they have been during the fall months of this year, and can safely say that it has proven as equally efficacious as the sulphate of quinine, at the same time being divested of some of the unpleasant results of the latter affecting the stomach and head, and would cheerfully recommend its trial and use to the profession.

From M. S. Croft, Jackson, Miss., Dec. 21st, 1875.

I have not had opportunity or time to put cinchonidia to a test. I have used it but one time; it then checked an intermittent when quinine had failed. I gave twenty-four grains in four doses. Will try it if cases present, and report to you, with pleasure.

Drs. John and Samuel H. Chester, Jackson Tenn., Dec. 23d, 1875.

It is with much pleasure that we can state that we have given your sulphate of cinchonidia a fair trial, in cases where quinine could not be tolerated, such as intermittent and remittent fevers, etc., and are very much pleased with its therapeutic action. We find that it does not produce sick stomach, and does not disturb the head, etc., as is the case with quinine. We can, therefore, recommend it to the profession, and will use it ourselves whenever an opportunity presents itself.

Dr. A. W. Smith, House Surgeon, New Orleans Charity Hospital, Jan. 17, 1876.

I deem it right to state that for some time past many of the attending physicians and surgeons to this hospital have been prescribing sulphate of cinchonidia in place of quinia. Several of the professors of the medical department of the University of Louisiana have used this salt to a greater extent than any other.

Dr. S. M. Bemiss, Professor of Theory and Practice of Medicine, requests me to say that thus far it has given him the fullest satisfaction, and that its effects seem to be the same as that of quinia.

Dr. C. Beard, Professor in the Charity Hospital School of Medicine, and Dr. Thebault, also one of our attending physicians, say that they are satisfied with the results of their trial of sulphate of cinchonidia, and that they prescribe it in the same dose as quinia, and that malarial diseases yield as readily under its use.

Dr. P. C. Boyer, Attending Physician and Surgeon to the Hotel Dieu, says that he has used sulphate of cinchonidia for some time, and that its action on malarial diseases is similar to that of quinia.

I can safely say, from the short experience of the use of the sulphate of cinchonidia in this hospital, that it can, with confidence, be prescribed instead of quinia, and that the difference, if any, required in the dose will not begin to compare with the difference in the cost of the two preparations.

From W. W. Hall, M. D., Grenada, Miss., Dec. 27, 1875.

I have used the sulphate of cinchonidia more or less for more than a year, with satisfactory results. During the past summer and fall our supply of quinine was exhausted, and I was driven to the necessity of prescribing the cinchonidia in the worst class of cases. While I confess to a partiality for quinine in cases of congestion, I must say that the cinchonidia in no case failed. Combined with one-third quinine, it has been equally as prompt as quinine alone.

From E. W. Hughes, Grenada, Miss., Dec. 25, 1875.

I have prescribed the sulphate of cinchonidia in intermittent and remittent fever, with the best results.

From J. M. Gray, M. D., Holly Springs, Miss., Dec. 20, 1875.

I received and have used the specimen of cinchonidia. I have been very much pleased with its effects. I have requested my druggist to keep it

From W. H. Ford, M. D., Canton, Miss., Jan. 3, 1876.

I take pleasure in saying that I have used sulphate of cinchonidia in a variety of cases, adults as well as child-

ren, by the mouth and rectum, in about the same doses as I usually prescribe quinia, and have not been able to observe any difference in the action of the two salts. In my hands the preparation has been quite as reliable as the quinine, and does not seem to have produced cinchonism as readily.

From D. W. Booth, M. D., City Hospital, Vicksburg, Miss., Dec. 23, 1875.

During the past six weeks I have used, in the crowded wards of this Institution, in the treatment of nearly every variety of malarial disease, the sulphate of cinchonidia, to the entire exclusion of the sulphate of quinia, and am so well satisfied with its utility as a substitute that I shall continue its use. I have consumed some twelve or fifteen ounces in the treatment of over one hundred cases of intermittent and remittent fever, and with as satisfactory results as I ever had in treatment of the same types of disease with the sulphate of quinia.

I can corroborate what is claimed, in this remedy's not producing the unpleasant head symptoms of quinine; by no means the least important of its virtues as a remedial agent.

From Charles T. Reber, M. D., Shelbyville, Ill.

In the *Druggists' Circular*, for November, appears an article originally published in the London *Lancet*, written by Surgeon Major Geo. Yates Hunter, of Bombay, on sulphate of cinchonidia, that must be quite perplexing to those who have used that article of medicine with quite different results; so much so, in fact, as to raise at least two questions. First, whether the drug used by Surgeon Major Hunter is the same as that manufactured by Powers & Weightman and Rosengarten & Son; or whether the malarial fevers of Bombay are different from those of this country? For one, I must say that one or the other must be true, if Hunter gave the drug a fair and unprejudiced trial. I would modestly suggest that the drug did not have a fair trial. He says: "I treated fifty-five cases of fever, chiefly intermittent, of a mild form, due to sudden changes of weather, exposure to the cold, pri-

vation, etc., or indiscretions in diet." Now, what does such a trial amount to? And the particulars in regard to these cases given by him are not worth anything, for no intelligent practitioner lays any claims for cinchonidia, nor indeed for quinia, in such cases.

He further states that, in several cases of a severe type, cinchonidia completely failed, and quinia had to be resorted to. "And in one bad case of remittent fever, which I regret to say ended fatally, cinchonidia was tried for two days, and was discontinued on account of proving ineffectual" (and here leaks out a secret), "thus *strengthening my impression*," etc. What impression? How was this impression produced? Surely not from his own experience, if he states that experience correctly and fully, and he certainly has no desire to say anything in favor of cinchonidia.

I have prescribed cinchonidia in place of quinia for eighteen months, have used over one hundred and twenty-five ounces, have never prescribed over forty grains per day, have used it in intermittent, remittent, typho-malarial and congestive cases, have used it in over fifteen hundred cases, and am as well satisfied with its therapeutic effects as with those of quinia; have never had to resort to quinia or any other agent to arrest any case that could be arrested by a cinchona alkaloid.

Dr. Hunter states it produces headache *almost amounting to semi-congestion of the brain*. Now, what pathological condition is that? It is certainly very finely put. It produces far less cerebral disturbance than quinia.

As to its locking up the secretions, I will simply say it does just the reverse in this part of the United States of America, whatever it may do when combined with opiates at Bombay.

I can write nothing more in answer to, or in criticism of, Surgeon Major Hunter's article; and but for the fact that it is desirable the profession should know the truth in regard to its materia medica and therapeutics, I should not have written one word on the subject now. I have no axe to grind, no hobby to ride, do not condemn quinia. I would be glad to have every one who wishes a good

substitute for quinia try cinchonidia fairly, with a view to testing its merits alone.

It seems to me Dr. Hunter must have sulphate of cinchonidia on trial. His article fits my experience with that agent exactly, excepting the headache *almost amounting to semi-congestion*.

From C. H. Fort, M. D., Adams Station, Robertson County, Tenn., Jan. 27th, 1876.

I pronounce the cinchonidia equal to any of the preparations of barks, and as reliable in the treatment of all our malarial types of fevers. I believe I have given it a fair test in all our diseases, and I am so far entirely satisfied with it. I have used but little except cinchonidia in the past twelve months. I commenced using it in the spring of 1874. I have as yet had no complaints, even from very nervous and hysterical females, of the unpleasant effects of sulph. quinine, and it has been quite a source of amusement to me how they are disappointed when I give them the cinchonidia, they thinking it is quinine, and expressing themselves as being rejoiced that they have changed; since they suffer from no unpleasant symptoms. The effect of the cinchonidia lasting longer than sulph. quinine, makes it a little better antiperiodic, and consequently I prefer it in all cases of chronic fever and ague. I have relieved many cases that bid defiance to quinine and arsenic. I have tested all the preparations of barks upon myself (being a fit subject for malaria), and have watched their effects closely, both by the thermometer and my feelings; and being also more easily administered it is more preferable for children.

From Dr. John S. Dare, Bloomington, Ind., Jan. 31st, 1876.

I confess to a slight determination not to believe the cinchonidia better than quinine. To the use of the sulphate cinchonidia my prejudices have yielded, and now the only difference in the two seems to be in price, the cinchonidia being the cheaper remedy. I am now satisfied, and hope the continued use of the cinchonidia will enable me to discard the aid of its cousin, quinine, from

my practice, though its many favors during the past thirty-four years shall not go unremembered.

SULPHATE OF CINCHONIDIA

IN THE

TREATMENT OF INTERMITTENT FEVER,

WITH REPORTS OF THIRTEEN CASES.

BY ROBERT N. TAYLOR, M. D.,
House Physician to the Louisville City Hospital.

READ AT A MEETING OF THE MEDICO-CHIRURGICAL
 SOCIETY OF LOUISVILLE, NOV. 28, 1875.

The plan of giving the cinchonidia in the following cases was very similar to Liebermeister's mode of giving quinine in intermittent fever.

Five hours before the time for the chill to appear the individual took twenty grains of cinchonidia, and at the expiration of an hour, twenty grains more were administered, making forty grains within an hour, the last dose being taken four hours before the paroxysm was expected. In a few of the cases, a somewhat smaller quantity of the drug was given; but the same plan of administering it was observed.

CASE I. L. H., female, æt. 19, white; admitted to the Louisville City Hospital, October 15, 1875. She had been suffering with a tertian type of intermittent fever of the character commonly called "dumb chills," for three weeks previous to her admission.

She had three chills after she entered the ward. On the day when the fourth chill should have made its appearance, cinchonidia was administered according to the plan detailed above, and the patient escaped her chill. There was no further medication, and although the patient remained under observation three weeks longer the chills did not reappear.

CASE II. A female, æt. 19, white; had been suffering with chills for nearly two months previous to admission to the hospital, which

was on the 14th day of October, 1875. Sometimes the chill was of the tertian type, and then again for several days it assumed the quotidian form. The latter variety she was suffering with at the time of her admission.

The day after she was admitted she took thirty grains of cinchonidia within an hour: taking fifteen grains five hours before the time for the chill to appear, and the other remaining fifteen grains after the expiration of an hour from the time of taking the first dose.

The result was the paroxysm was broken. The following day, at the same hours, she took a like quantity of the drug, and again she had no chill. After this she took no more cinchonidia, and though she remained under careful scrutiny for about two weeks longer, the chills not reappearing, she was discharged cured.

CASE III. Female, æt. 30, white. Admitted October 16, 1875. She had been having a regular shaking chill every day for eight weeks previous to her admission. Cinchonidia, forty grains, was administered according to the plan pursued in the former cases, for three successive days without breaking the paroxysm entirely. But each chill was lighter than the preceding one, and the fourth day, the same quantity of cinchonidia being exhibited, the patient had no chill.

There was no further medication, and the woman remaining under observation a considerable length of time, and no chills reappearing, was finally discharged cured.

CASE IV. Female, æt. 40, white. On October 19, 20, 21, 22 and 23, she had a regular shaking chill. October 24, cinchonidia, forty grains, was administered as in the previous cases, and she had no chill. There was no necessity for repeating the dose, as the chills were effectually broken.

CASE V. Female, æt. 32, eight months gone in her third pregnancy. Admitted October 20, 1875. Had a chill the day previous to her admission, and also for three successive days afterwards. On the fourth day she took forty grains of the cinchonidia, and had no chill. After which no more cinchonidia was given and the paroxysms have not reappeared.

CASE VI. Female, æt. 34, white. This patient, who was in the last stages of consumption, had been suffering for several days with a tertian intermittent. One administration of forty grains of the cinchonidia broke the chills, which, however, returned two weeks afterwards, but again readily yielded to the drug, and this time permanently.

CASE VII. Female, æt. 24; admitted October 25, 1875. Had been suffering with a quotidian intermittent for two weeks previous

to her admission. Had a chill on the day she was admitted. On October 26, she took the cinchonidia and had no chill. On the 27th, she took no medicine but had no chill. On the 28th, no medicine being given, she had a slight chill. On the 29th, the cinchonidia was again administered and no chill was the result. On the 30th, she took no medicine but had a chill. On the 31st, she took forty grains of cinchonidia and had no paroxysm. November 1, 2, 3 and 4, she took the cinchonidia on each of these days and had no further attack of chills. After this there was no more medicine given, and the patient remained under observation for a week longer, but the chills did not reappear.

CASE VIII. Female, æt. 20; admitted October 29, 1875. Had three chills of the tertian type previous to her admission. October 30, being her next chill day, she was ordered cinchonidia, and had no chill. November 1, 3 and 5, the drug was administered and there was no chill on either day. After this there was no further necessity for giving the medicine, as the chills proved to be permanently broken.

CASE IX. Female, æt. 30. Had been suffering with a tertian intermittent for three weeks previous to her admission, which was on October 29, upon which day she had a paroxysm. October 31, being her next chill day, she was ordered the cinchonidia, and had no chill. Nov. 2, 4 and 6, she took the drug, and had no chill either day. After this the medicine was discontinued and the chills did not reappear.

CASE X. Female, æt. 31. This patient had four chills of the tertian form previous to her admission, which was on November 1, 1875. November 2, being her chill day, she took cinchonidia and had no chill.

November 4, she took the medicine, and had no chill. After this the medicine was discontinued and the paroxysms not again appearing, she was discharged November 11.

CASE XI. Female, æt. 18. November 3 and 4, she had a chill each day. November 5, she took cinchonidia, and had no chill. The cinchonidia was not repeated—the one administration sufficing to break the chills permanently.

CASE XII. Female, æt. 22. This patient has had a hard, shaking chill every day between the hours of 11 a. m. and 12 m., for the last three months. Admitted November 2, on which day she had a chill. She had another one on November 3. On the 4th, she took, at 6 a. m., twenty grains of the cinchonidia, and at seven o'clock the dose was repeated. That day she had no paroxysm. November 5, she took only twenty grains of the drug at 7 a. m., but escaped a

chill. November 6, 7, 8, 9 and 10, she took forty grains of cinchonidia each day, and had no sign of chill either day, after which the drug was discontinued and the chills did not return until November 23, when she had a chill, and also again on the 24th. On the 25th, she took forty grains of cinchonidia, and had no chill. On the 26th, she took no medicine and had no chill.

CASE XIII. Female, æt. 35. This patient has had phthisis pulmonalis for about four years, and at the present time has a large cavity in the apex of the left lung. November 16 and 17, she had a chill each day. November 18, ordered cinchonidia and she had no chill. The cinchonidia was given but the one time (on the 18th), and this proved to be entirely sufficient to break up the paroxysms.

REMARKS.

Quinine could certainly not have produced any better, or more entirely satisfactory results than were attained by the employment of cinchonidia in the above series of cases.

In six of the cases (viz., 1, 4, 5, 6, 11 and 13,) the medication was not repeated after the first day. One administration of the drug proving efficacious in breaking the course of the chills.

In five cases (2, 8, 9, 10 and 12,) the cinchonidia was repeated every chill day for a period varying in the different cases from two to four days, and this without waiting to see whether or not it was necessary to do so; and it is but fair to presume that in one or two of these five cases it really *was not* necessary.

Of the two remaining cases, in one of them the withdrawal of the medicine, after the first day, was followed by a return of the chills—necessitating its repetition, and the other was the only one of the thirteen cases in which the remedy failed to ward off the paroxysm on the first administration.

The observations made on the above cases justify the statement, *that cinchonidia does not produce, to the same extent, the unpleasant cerebral symptoms which follow the administration of large doses of quinine.*

Neither the headache, the ringing in the ears, the sensation of fullness and distension in the head, nor the suffusion of the eyes is so great when produced by cinchonidia as are the same phenomena ensuing upon an equal dose of quinine.

Cinchonidia in the above cases had very little or no tendency to produce that nausea and vomiting which is one of the most common and unpleasant effects of a large dose of quinine.

Oxytocic properties have, by some, been attributed to quinine, but cinchonidia need not labor under this disadvantage in the treatment of intermittent fever, occurring in the pregnant woman, if the teaching of one case is of any value, for in case 5 the patient, who was eight months advanced in her third pregnancy, took forty grains of the cinchonidia without any visible or appreciable effect upon the uterus.

From a commercial standpoint, the employment of cinchonidia in the treatment of intermittent fever would seem to be most desirable, for by so doing we utilize more of the cinchona bark, and thus multiply the resources from which to draw our supplies.

In a large number of cases of intermittent fever not included in the above article, the cinchonidia treatment gave the most satisfactory results.

Since the foregoing thirteen cases were tabulated, the writer has employed cinchonidia in all the cases of intermittent fever under his charge in the hospital wards, and also in all the cases which applied for out-door treatment, and with uniform success.

OBSERVATIONS ON THE ACTION OF SULPHATE OF CINCHONIDIA.

BY L. S. OPPENHEIMER, M. D.

Late House Physician to the Louisville City Hospital.

Published in *The American Practitioner*, of Kentucky, for March 1876, and the *Nashville Journal of Medicine and Surgery*, for February, 1876.

The "Cinchonidia question" has aroused so much debate for the past few months, that I have been tempted to publish the records of my observations upon the action of this interesting therapeutic agent, made during the month of October, 1875, at the Louisville City Hospital, since which time I have had every reason to reindorse this paper.

I have made three comparative experiments with the cinchonidia in a number of cases, with a view of solving the following questions:

First. Its power in lowering animal temperature.

Second. Its anti-periodic properties.

Third. Its comparative relation to quinine in producing cinchonism.

Tabulating each case in, in my estimation, the best manner of bringing before the practitioner a subject of this character, in order that he may, if the recorder has overlooked any serious points, compare these omissions with the result.

It will be understood that these investigations are for the purpose of comparing the effects of cinchonidia with those of quinine. But I have, in order to give a full report of the various cases, made reference to subjects which have no direct connection with cinchonidia or its effects, which I hope will render this excusable.

ACTION OF CINCHONIDIA ON THE TEMPERATURE.

CASE I. G. W., aged 48; by occupation a gardener. Typho-malarial fever, sick about two weeks. Admitted October 12, 1875, in a semi-comatose condition. At night he was in a low muttering delirium; temperature $103\frac{1}{4}^{\circ}$; pulse 116. Ordered cinchonidia, grs. x, every four hours, to be given with whisky $\frac{3}{2}$.

October 13, 10 a. m. Temperature $101\frac{1}{2}^{\circ}$; pulse 108. 7 p. m. temperature 100° .

October 14, 9 a. m. Temperature $99\frac{1}{4}^{\circ}$; is more rational and sleeps more quietly, is also beginning to eat solid food.

October 17. Temperature and pulse normal, and on October 28, he was discharged cured.

CASE II. W. S., German, aged 35; baker; remittent fever. Admitted October 8, 6 p. m. Comatose; temperature $104\frac{1}{2}^{\circ}$; pulse 124, and exceedingly weak. Had been comatose for twelve hours.

History.—Six weeks ago had tertian intermittent fever, which, after lasting two weeks, became quotidian and, for a week past, this has taken the form of a remittent fever. On the night of his admission he could not be aroused in the least from his coma.

There being total inability to swallow, whisky $\frac{3}{2}$ and carb. ammonia, grs. x, were given per enema every two hours during the night. By the next morning the patient was able to speak and swallow. Temperature $102\frac{3}{4}^{\circ}$; ordered cinchonidia, grs. x, every four hours.

8 p. m. Temperature 101° . This treatment was continued three days; at the expiration of which time the temperature was normal, and the patient was able to be out of bed and take light exercise.

CASE III. T. C., colored, aged 24; occupation, a driver. Typhoid fever. Admitted October 6. Had been sick for ten days. Temperature at 3 p. m. was $103\frac{3}{4}^{\circ}$. Ordered ten grains cinchonidia every two hours.

7.30 p. m. Temperature $100\frac{3}{4}^{\circ}$, then ordered the cinchonidia to be given every four hours thereafter.

October 9, 4.30 p. m. Temperature 103° ; gave ten grains at 5 and 7 p. m. Temperature at 8 p. m., 102° .

October 10, 9 a. m. Temperature 101° ; the medicine was discontinued for two days, at the end of which time the temperature went up again to $104\frac{1}{8}^{\circ}$, but was again brought down with the cinchonidia to $100\frac{1}{2}^{\circ}$. After this ten grains thrice daily were administered.

November 3. Temperature 99° , and patient has been sitting up for several days.

NOTE. It may not be out of place to state here, with regard to the question as to the nourishing properties of beef tea and beef

essence, that this patient, being much averse to all kinds of stimulants, as well as to milk, was fed for three weeks consecutively upon nothing whatever save beef extracts, with the exception of about four ounces of wine daily, for the first week.

CASE IV. D. A., colored, aged 55; laborer. This case should properly come under the head of "intermittent fever," but I produce it here in order to show the anti-pyretic effect of cinchonidia in this instance, as well as its anti-periodical results. The man was admitted into the hospital October 5. He stated that he had been suffering for a week with chills; double quotidian at 10 a. m. and at 5 p. m. each day.

October 6, 10 p. m. Temperature $98\frac{3}{4}^{\circ}$; pulse 84. Ordered ten grains of cinchonidia every two hours, until he had taken thirty grains. No chills at 5 p. m. Temperature at 7 p. m. $99\frac{3}{4}^{\circ}$; pulse 98, and very irregular.

October 7. Continued 10 grains every two hours from 6 to 10 a. m. and from 1 to 5 p. m., without effect.

October 8 and 9. Ten grains at 6, 7 and 8 a. m., and 1, 2 and 3 p. m., without any apparent result, not even producing cinchonism. His pulse was exceedingly irregular and fast; skin dry and hot. Not having Norwood's tincture verat. virid. in the house at the time, I prescribed the officinal tincture, which, as is well known, is always very variable in strength; at the same time advising the nurse to watch the patient closely all the time. The drug was administered every four hours. When eight doses had been taken, I was called in great haste to the patient, whom I found suffering from what I believed to have been "the accumulative action" of the medicine. His pulse was scarcely perceptible; counted 46 beats to the minute. He had already vomited pretty freely, but was still rolling about on the floor, gasping for breath, and pointing to his heart as the seat of his agony, for he was speechless. I gave him a good drink of brandy, containing arom. spts. ammonia, $\mathfrak{z}\text{i}$, and in a very short time he regained his speech. The pulse remained below 50 beats for about an hour. After this he was entirely free from the first trouble, and was discharged entirely well two weeks ago.

CASE V. Pat. C., aged 35; railroader by occupation. Quotidian intermittent fever for twelve days. Temperature every evening at 6 o'clock, 102° to $103\frac{1}{2}^{\circ}$.

October 10, 2 p. m. Temperature $100\frac{1}{4}^{\circ}$; gave him ten grains cinchonidia at 2, 4 and 6 p. m. 7 p. m. Temperature $98\frac{3}{4}^{\circ}$. Intermittent cured.

CASE VI. G. M., German; occupation, a cook; aged 60; chronic dysentery. 2 p. m., temperature $99\frac{1}{4}^{\circ}$. Ten grains cinchonidia at 2

and 4 p. m. Temperature at 6 p. m., $98\frac{3}{4}^{\circ}$, less than it had been for two weeks.

CASE VII. M. S., carpenter, aged 52; mitral insufficiency. Temperature every evening $98\frac{3}{4}^{\circ}$ to 99° . Temperature at 2 p. m. $98\frac{3}{8}^{\circ}$. Ten grains cinchonidia at 2 and 4 p. m. Temperature at 6 p. m., $98\frac{1}{8}^{\circ}$.*

INTERMITTENT FEVERS.

R. Ten grains every two hours until thirty grains were taken.

The results of my observation, as to the anti-periodical properties of cinchonidia, I append in the following diagram. In all of these cases the last dose was given two hours previous to the chill hour. The administration of the medicine was continued from three to five days, and then discontinued, the treatment after this being tonics.

CASES CURED.

NO.	NAME.	AGE	OCCUPATION.	CHARACTER.	HOW LONG SICK BEFORE TREATMENT.
1	Edward B.	27	Hack Driver.	Tertian.	Two Weeks.
2	James McC.	23	Typo.	Quotidian.	Two Weeks.
3	John McC.	32	Railroader.	Quotidian.	Four Weeks.
4	Patrick C.	35	Railroader.	Quotidian.	Six Weeks.

CASES NOT CURED WITH ABOVE DOSES, BUT CURED BY FIVE GRAINS ADMINISTERED EVERY HALF HOUR UNTIL TWENTY GRAINS WERE TAKEN.

5	Amos C.	13	Office Boy.	Tertian.	Two Months.
6	John L.	27	Machinist.	Tertian.	Two Weeks.
7	William S.	35	Baker.	Quotidian.	Six Weeks.
8	John C.	24	Tailor.	Quotidian.	Three Weeks.

To the following cases were given twenty grains, in doses of ten grains repeated in an hour.

CASE 9. R. S., age 26; calico dyer; tertian; sick five weeks. This patient took twenty grains in the above manner without succeeding in warding off his chill, but the following chill was kept off by the same treatment. No paroxysm since.

CASE 10. B. B., age 28; laborer; quotidian; sick four weeks. Had tertian intermittent during the first week, and quotidian since. The cinchonidia produced purgation in this case, which, however, ceased when the medicine was stopped.

*Since these cases were recorded, others have constantly come under my notice, which further substantiate the antipyretic virtues of cinchonidia. A tabulation of them is left out here, because of the voluminous proportions which this paper must assume if they were added.—L. S. O.

CASE 11. W. H. G., age 55; teacher; quotidian; sick eighteen days. This case also began as tertian and remained so for a week. The cinchonidia cured his intermittent, but set up a diarrhœa, which ceased only when the medicine was suspended; but was again brought on upon his retaking the cinchonidia ten grains three times per day; and it was fully a week after before his bowels were well checked. But I may, at the same time, add that quinine has produced this same effect in my practice, even oftener than cinchonidia.

CASE 12. G. S., had chronic dysentery and tertian intermittent. The cinchonidia was given in this case as a tonic, in five grain doses three times a day. He had only taken four doses, when he noticed that his dysentery (which had been somewhat checked for over two weeks) was now greatly aggravated. Upon stopping the medicine he immediately began to improve. This was repeated with the same result.

Cases cured with 30 grains, 10 grains every hour.

CASE 13. J. L., quotidian, age 32; sick three weeks; railroader.

CASE 14. C. P., quotidian; age 23; sick twelve days; shoemaker.

This case took 10 grains quinine every four hours, for 14 days, with no effect.

CASE 15. J. McC., quotidian; age 37; sick thirteen days; compositor.

CASE 16. A. W., quotidian; age 37; sick five days; carpenter.

The following cases were all cured with 20 grains of the drug—five grains every half hour—the last dose being given two hours before the chill time, as had been done in the foregoing cases. In four cases, Nos. 26, 27, 30 and 33, the paroxysm was not completely warded off, but the fever was very slight. These had no further attack after the next administration of the medicine in the same manner.

CASE 17. C. P., tertian, sick sixteen days, aged 21, a miner.

CASE 18. A. H., tertian, sick two weeks, age 28, cigar maker.

CASE 19. P. L., tertian, sick two weeks, age 33, gardener.

CASE 20. M. S., tertian, sick twelve days, age 64, laborer. This man's chill hour was at 2 a. m.

CASE 21. A. P., tertian, sick five weeks, age 55, farm hand.

CASE 22. T. W., tertian, sick four weeks, age 41, laborer.

CASE 23. J. D., tertian, sick two and one-half weeks, age 34, blacksmith.

CASE 24. A. Z., tertian, sick three weeks, age 18, peddler. Chill hour was at midnight.

CASE 25. L. H., tertian, sick three weeks, age 33, confectioner.

- CASE 26. C. J., tertian, sick seven days, age 21, tobacconist.
 CASE 27. R. H., tertian, sick six weeks, age 26, farm hand.
 CASE 28. C. W., tertian, sick twelve days, age 35, cutler.
 CASE 29. C. B., quotidian, sick two weeks, age 29, law clerk.
 CASE 30. J. F., quotidian, sick ten days, age 37, gardener.
 CASE 31. N. VonD., tertian, sick eight days, age 30, farm hand.
 CASE 32. J. McD., tertian, sick four days, age 32, laborer.
 CASE 33. J. K., tertian, sick ten days, age 33, shoemaker.
 CASE 34. M. D., tertian, sick six months, age 69, laborer.

This man has been cured several times since the beginning of his attack, with quinine, but has not remained cured for more than three weeks at a time. He is very much debilitated. The cinchonidia cured him entirely.

CASE 35. M. W., seamstress, been sick eight months, age 30, tertian form; quinia broke the chills for four or five days each time it was administered, but had no power to keep them broken. Cinchonidia kept the paroxysm off for two weeks, but they again returned. After breaking the last paroxysm, ten grains of the cinchonidia twice per day, for three weeks, has succeeded in curing her entirely.

To the following cases twenty-eight grains of cinchonidia were administered in divided doses, twelve grains at 2 p. m., and sixteen grains at 4 p. m. During a previous week, the same quantity of quinine was exhibited in the same manner. The action of both alkaloïds upon each case was briefly as follows:

CASE 1. Mr. H. M. B., druggist, age 25. Effects of quinia:— 6 p. m., fullness of the head and dizziness, with some feeling of discomfort. 8 p. m., considerable fullness of the head, amblyopia, slight exhilaration of spirits, afterwards headache, and marked tinnitus aurium. Effects began wearing off about 10 p. m.

Cinchonidia effects at 6 p. m., fullness of head, and slight amblyopia, accompanied by *muscæ volitantes*. 8 p. m., no further disagreeable effects, save very slight nausea, and some dryness of the fauces.

CASE 2. Dr. P. H. P. Effects of both medicines were the same as those of Case 1, except that there was more amblyopia resulting from the cinchonidia than from the quinine. But this was clearly due to the fact that Dr. P. had been in the habit of taking large doses of quinia for some time. It also produced a profound depression of spirits during this short time.

CASE 3. Myself. Effects same as those in Case 2, only differing in being of a less severe character.

It will be noticed from the above three cases, that a further narration of detail concerning the difference in the symptoms of cinchonism

produced by Cinchonidia and Quinia would be superfluous here. One can see at a glance that they closely resemble each other.

REMARKS.

As an oxytoxic agent Cinchonidia has, in my hands, proven itself of equal efficiency with Quinia. Indeed, in one case which came under my notice, 20 grains of the drug administered in 5-grain doses every half hour (that of a woman suffering from intermittent fever, and advanced to the eighth month of gestation), was instrumental in bringing about a premature labor five hours after the last dose had been taken.

Obstinate cases of intermittent fever which have resisted Quinia treatment, pushed to its fullest extent, and, as well, Cinchonidia in ordinary doses, nearly always succumb to the Cinchonidia when administered in 5 or 7 grain doses repeated every three hours, and continued for two or three weeks. In these cases it is necessary to give large doses of Strychnia, Arsenic, Phosphorus, or Iron, from the very beginning. When Cinchonidia is taken in these large doses for any length of time, it begins to give rise to nausea and vomiting; this, however, can usually be remedied by changing the menstruum in which the drug has been given, or altering the mode of administration as to time.

In puerperal peritonitis and other diseases where everything is to be avoided which will induce or auxiliate nausea and vomiting, Cinchonidia is not equal to Quinia, even when given per enema. Notwithstanding this point against its use in such cases, I should add that its effect upon the temperature in them all is very definite, prompt and satisfactory.

Ordinary remittent fevers, as has been seen in the above tables, are as successfully treated with Cinchonidia as with Quinia. In some cases of tuberculous fever, Cinchonidia failed to reduce the temperature to any material degree, but every other febrifuge was tried in these cases, with no better result.

The price of Cinchonidia, which is one-third that of Quinia, is, of itself, an item worthy of serious consideration to the profession; particularly when we recognize the fact that our present consumption of Quinia must soon—sooner than is generally believed—deplete the market of this indeed valuable therapeutic agent. But, when added to this truth is the fact that Cinchonidia is a superior remedy in all cases of intermittent fevers, there is scarcely any excuse for not treating these with a surer and a cheaper agent.

The deduction which will be made by the reader from the foregoing paper will be, it is hoped, a sufficiently formidable argument against the ignorantly urged statement that it required “three times the amount of Cinchonidia to produce the effects secured by Quinia,” inasmuch as it will have been seen that the quantity of Cinchonidia exhibited in each case was *exactly* the same as would have been used of Quinia.

Want of space forbids our inserting extracts from a number of letters from physicians affording testimony similar to the above.

It is proper to add that the profession have very promptly given attention to a candid examination of the new remedy, even in cases where there was a very natural disposition to rest upon quinia alone. We take occasion to say that their kind attention has truly been gratifying.

POWERS & WEIGHTMAN.

Sulphate of Cinchonidia.

Dear Sir:

While we seek to confine our business as much as practicable to the jobbing trade in cities and large towns, yet the numerous applications for Sulphate of Cinchonidia from persons distant from such points, necessitate, for the present at least, providing a package which can be sent by mail.

We therefore have prepared a six-ounce parcel which we forward postage paid on receipt of Five Dollars.

In remitting, it should be borne in mind that a post office order is the safest form, and next to it the registered letter. It is not safe to send money in unregistered letters.

Very respectfully, your friends,
Powers & Weightman.

Philadelphia, 1877.

